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ASD 105 (2008) (English): Safety Management
System At Aerodrome



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**AIRPORT STANDARDS DIRECTIVE 105
[ASD 105]**

**SAFETY MANAGEMENT SYSTEM
AT AERODROMES**



**AIRPORTS STANDARDS DIVISION
DEPARTMENT OF CIVIL AVIATION MALAYSIA**

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AMENDMENT RECORD

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INTRODUCTION

1. Responsibility for ensuring safety, regularity and efficiency of aircraft operations at aerodromes rests with contracting states to the Convention on International Civil Aviation. Contracting states are obliged to observe Articles 28 and 37 of the Convention and shall ensure aerodromes and aerodrome facilities, infrastructures and services provided are consistent with Standards and Recommended Practices [SARP] developed by ICAO.
2. This Directive describes the requirements for an Aerodrome Operator's Safety Management System [SMS] operating in accordance with ICAO Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operations. Within the context of this Directive, the term Aerodrome Operator shall be understood to designate any organization providing aerodrome operating services.
3. This Directive addresses aviation safety related processes and activities rather than occupational safety, environmental protection, or customer service quality. The Aerodrome Operator shall also be responsible for the safety of services or products contracted to or purchased from other organizations.
4. This Directive establishes the minimum acceptable requirements. The Aerodrome Operator can establish more stringent requirements.
5. As a contracting state to the Convention on International Civil Aviation, the Safety Management System [SMS] for certified aerodromes, in any state of Malaysia, shall be implemented in accordance to this Directive.

OBJECTIVE

6. This Airport Standards Directive [Directive] is intended to serve guidance to aerodrome operators pertaining to ICAO mandatory requirement for a Safety Management System to be established at certified aerodromes. It outlines the procedures engaged and the subsequent compliance and enforcement of the aerodrome operator's obligations.

RULES

7. Aerodromes intended for use by public transport aircraft are to be certified and shall have in-placed a Safety Management System in accordance to the requirements as defined in this Directive.
8. Aerodrome Operator shall establish, maintain and adhere to a Safety Management System that is appropriate to the size, nature and complexity of the operations authorized to be conducted under its Aerodrome Operating License and/or Aerodrome Certificate; and the safety hazards and risks related to the operations.

9. The Safety Management System, as a minimum, shall -
- [i] identifies safety hazards;
 - [ii] ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
 - [iii] provides for continuous monitoring and regular assessment of the safety level achieved; and
 - [iv] aims to make continuous improvement to the overall level of safety.
10. The Authority must be satisfied that the Safety Management System conforms to the requirements of this Directive.

APPLICABILITY

11. This Directive is applicable and prescribes rules governing the Safety Management System for aerodromes, in any state of Malaysia, intended for use by public transport aircraft.
12. Government aerodromes and military aerodromes are not subjected to the need for a Safety Management System.
13. Private-owned aerodrome that is not open for use by public transport aircraft are not subjected to the need a Safety Management System.

AUTHORITY

14. The Authority is the Director General of Civil Aviation Malaysia.

SMS ASSESSMENT

15. The Safety Management System [SMS] Manual is a fundamental requirement for the assessment on SMS at aerodromes.
16. Aerodrome Operator shall submit two [2] copies of SMS Manual to the Authority, at the following address –

DEPARTMENT OF CIVIL AVIATION MALAYSIA
Airport Standards Division
Level 1, Block Podium B,
No. 27, Persiaran Perdana, Precinct 4,
62618 Putrajaya.
Phone : 03-88714000
Fax : 03-88714335

17. The SMS Manual shall contain all the particulars and information as indicated in **Appendix I** of this Directive.
18. The Authority may require other documentation to facilitate the assessment on the SMS Manual.
19. The interval between the submission of the SMS Manual and its acceptance may depend upon matters within the control of the Aerodrome Operator and no undertaking can be given that the Authority will be able to reach a decision within a particular time period.
20. The Aerodrome Operator should in his own interest consult the Authority before committing himself to expenditure on developing or equipping an aerodrome with regards to any mitigating measures mentioned in the SMS Manual.

ACCEPTANCE OR REFUSAL

21. The Authority must be satisfied that the SMS established for the aerodrome will offer a safe environment for the operation of the aircrafts that it is intended for and that the Aerodrome Operator's Safety Policy and Objectives, Safety Risk Management, Safety Assurance, Safety Promotion and Quality Policy are consistent and has met the requirements as stipulated in this Directive.
22. Based on the assessment of the SMS Manual, and the subsequent inspection conducted on the aerodrome, the Authority will notify the Aerodrome Operator whether the SMS established for the aerodrome is acceptable or otherwise.

PERIODIC VERIFICATION

23. Scheduled assessment will be made by the Authority to ensure that SMS at certified aerodromes continues to comply with the requirements of this Directive.
24. The scheduled assessment on SMS may be conducted as part of the scheduled inspection on certified aerodromes, that is conducted as follows -

International airports	Every year
Domestic airports	Every two years
Domestic airstrips	Every three years
Heliports	Every three years

SAFETY POLICY AND OBJECTIVES

GENERAL REQUIREMENTS

25. The Aerodrome Operator shall define the organization's safety policy. A sample of safety policy is as in **Appendix II**
26. The safety policy shall be signed by the Chief Executive Officer of the organization.
27. The safety policy shall be in accordance with international and national requirements, and reflect organizational commitments regarding safety.
28. The safety policy shall be communicated, with visible endorsement, throughout the organization.
29. The safety policy shall include a clear statement about the provision of the necessary human and financial resources for its implementation.
30. The safety policy shall, inter alia, include the following objectives -
 - [i] commitment to implement an SMS;
 - [ii] commitment to continual improvement in the level of safety;
 - [iii] commitment to the management of safety risks;
 - [iv] commitment to encourage employees to report safety issues;
 - [v] establishment of clear standards for acceptable behaviour; and
 - [vi] identification of responsibilities of management and employees with respect to safety performance.
31. The safety policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.
32. An aerodrome operator shall establish safety objectives for the SMS.
33. The safety objectives should be linked to the safety performance indicators, safety performance targets and safety requirements of the aerodrome operator SMS.

ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

34. The Aerodrome Operator shall identify an Accountable Executive to be responsible and accountable on behalf of the Aerodrome Operator for meeting the requirements of this Directive, and shall notify the Authority the name of the person.
35. The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of the SMS.
36. The Accountable Executive shall have -
 - [i] full control of the human resources required for the operations authorized to be conducted under the Aerodrome Operating License and/or Aerodrome Certificate;
 - [ii] full control of the financial resources required for the operations authorized to be conducted under the Aerodrome Operating License and/or Aerodrome Certificate;
 - [iii] final authority over operations authorized to be conducted under final authority over operations authorized to be conducted under the Aerodrome Operating License and/or Aerodrome Certificate;
 - [iv] direct responsibility for the conduct of the organization's affairs; and
 - [v] final responsibility for all safety issues
37. The Aerodrome Operator shall establish the safety structure necessary for the implementation and maintenance of the organization's SMS.
38. The Aerodrome Operator shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities.
39. Safety-related positions, responsibilities and authorities shall be defined, documented and communicated throughout the organization.
40. The Aerodrome Operator shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the implementation and maintenance of an effective SMS.
41. The Safety Manager shall -
 - [i] ensure that processes needed for the SMS are established, implemented and maintained;
 - [ii] report to the Accountable Executive on the performance of the SMS and on any need for improvement; and
 - [iii] ensure safety promotion throughout the organization.

SMS IMPLEMENTATION PLAN

42. The Aerodrome Operator shall develop and maintain an SMS Implementation Plan.
43. The SMS Implementation Plan shall be the definition of the approach the organization will adopt for managing safety in a manner that will meet the organization's safety needs.
44. The SMS Implementation Plan shall include the following -
 - [i] safety policy;
 - [ii] safety planning, objectives and goals;
 - [iii] system description;
 - [iv] gap analysis;
 - [v] SMS components;
 - [vi] safety roles and responsibilities;
 - [vii] safety reporting policy;
 - [viii] means of employee involvement;
 - [ix] safety communication;
 - [x] safety performance measurement; and
 - [xi] management review of safety performance.
45. The SMS Implementation Plan shall be endorsed by senior management of the organization.
46. The Aerodrome Operator shall, as part of the development of the SMS Implementation Plan, complete a system description.
47. The system description shall include the following –
 - [i] the system interactions with other systems in the air transportation system;
 - [ii] the system functions;
 - [iii] required Human Factors considerations of the system operation;
 - [iv] hardware components of the system;
 - [v] software components of the system;
 - [vi] related procedures that define guidance for the operation and use of the system;

- [vii] operational environment; and
- [viii] contracted and purchased products and services.

48. The Aerodrome Operator shall, as part of the development of the SMS Implementation Plan, complete a gap analysis, in order to –

- [i] identify the safety arrangements existing within the organization; and
- [ii] determine additional safety arrangements required to implement and maintain the organization's SMS.

COORDINATION OF THE EMERGENCY RESPONSE PLAN

49. The Aerodrome Operator shall develop and maintain, or coordinate, as appropriate, an Emergency Response Plan [ERP] that shall ensure -

- [i] orderly and efficient transition from normal to emergency operations;
- [ii] designation of emergency authority;
- [iii] assignment of emergency responsibilities;
- [iv] coordination of efforts to cope with the emergency; and
- [v] safe continuation of operations, or return to normal operations as soon as possible.

DOCUMENTATION

50. The Aerodrome Operator shall develop and maintain SMS documentation, in paper or electronic form, to describe the following –

- [i] safety policy;
- [ii] safety objectives;
- [iii] SMS requirements, procedures and processes;
- [iv] responsibilities and authorities for procedures and processes; and
- [v] SMS outputs.

51. The Aerodrome Operator shall, as part of the SMS documentation, develop and maintain a SMS Manual, to communicate the organization's approach to safety throughout the organization.

52. The SMS Manual shall acts as the key instrument for communicating the organization's approach to safety to the whole organization.
53. The SMS Manual shall document all aspects of the SMS, and its contents shall include the following –
- [i] scope of the safety management system;
 - [ii] safety policy and objectives;
 - [iii] safety accountabilities;
 - [iv] key safety personnel;
 - [v] documentation control procedures;
 - [vi] hazard identification and risk management schemes;
 - [vii] safety performance monitoring;
 - [viii] management of change;
 - [ix] safety auditing;
 - [x] safety promotion; and
 - [xi] contracted activities.

Information note

Generic guidelines for SMS documentation development and maintenance can be found in Attachment H to ICAO Annex 6, Part I and Attachment G to ICAO Annex 6 Part III Operator's Flight Safety Documents System.

SAFETY RISK MANAGEMENT

GENERAL

54. The Aerodrome Operator shall develop and maintain safety data collection and processing systems [SDCPS] that provide for the identification of hazards and the analysis, assessment and control of risks.
55. The Aerodrome Operator's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

HAZARD IDENTIFICATION

56. The Aerodrome Operator shall develop and maintain formal means of collecting, recording, acting on and generating feedback about hazards in operations, which combine reactive, proactive and predictive methods of safety data collection.
57. The hazard identification process shall include the following steps -
 - [i] reporting of hazards, events or safety concerns;
 - [ii] collection and storing the safety data;
 - [iii] analysis of the safety data; and
 - [iv] distribution of the safety information distilled from the safety data.

RISK MANAGEMENT

58. The Aerodrome Operator shall develop and maintain a formal risk management process that ensures the analysis, assessment and control of risks to an acceptable level.
59. The risks in each hazard identified shall be analysed in terms of probability and severity of occurrence, and assessment for their tolerability via the hazard identification processes described in **Appendix III**.
60. The organization shall define the levels of management with Authority to make safety risk tolerability decisions.
61. The organization shall define safety controls for each risk assessed as intolerable.

SAFETY ASSURANCE

GENERAL

62. The Aerodrome Operator shall develop and maintain safety assurance processes to ensure that the safety risks controls developed, as a consequence of the hazard identification and risk management activities under **Appendix III**, to achieve their intended objectives.
63. Safety assurance processes shall apply to an SMS whether the activities and/or operations are accomplished internally or outsourced.

SAFETY PERFORMANCE MONITORING AND MEASUREMENT

64. The Aerodrome Operator shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify safety performance of the organization in comparison with the approved safety policies and objectives, and to validate the effectiveness of implemented safety risk controls.
65. Safety performance monitoring and measurement means shall include the following -
 - [i] safety reporting;
 - [ii] safety audits;
 - [iii] safety surveys;
 - [iv] safety reviews;
 - [v] safety studies; and
 - [vi] internal safety investigations.
66. The safety reporting procedure shall set out the conditions under which immunity from disciplinary action would be considered.

MANAGEMENT OF CHANGE

67. The Aerodrome Operator shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.
68. The formal process for the management of change shall:
 - [i] identify changes within the organization which may affect established processes and services;
 - [ii] describe the arrangements to ensure safety performance before implementing changes; and
 - [iii] eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

CONTINUOUS IMPROVEMENT OF THE SAFETY SYSTEM

69. The Aerodrome Operator shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of under-performance of the SMS, determine the implications in its operation, and eliminate such causes, in order to ensure the continual improvement of the SMS.
70. Continuous improvement of the Aerodrome Operator's SMS shall include:
- [i] proactive and reactive evaluations of facilities, equipment, documentation and procedures, to verify the effectiveness of strategies for control of safety risks; and
 - [ii] proactive evaluation of the individuals' performance, to verify the fulfillment of safety responsibilities.

SAFETY PROMOTION

GENERAL

71. The Aerodrome Operator shall develop and maintain formal safety training and safety communication activities to create an environment where the safety objectives of the organization can be achieved.

SAFETY TRAINING

72. The Aerodrome Operator shall, as part of its safety promotion activities, develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties.
73. The scope of the safety training shall be appropriate to the individual's involvement in the SMS.
74. The Accountable Executive shall receive safety awareness training regarding -
- [i] SMS roles and responsibilities;
 - [ii] safety policy;
 - [iii] SMS objectives; and
 - [iv] safety assurance.

SAFETY COMMUNICATION

75. The Aerodrome Operator shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to -
- [i] ensure that all staff is fully aware of the SMS;
 - [ii] convey safety critical information;
 - [iii] explain why particular safety actions are taken; and
 - [iv] explain why safety procedures are introduced or changed.
76. Formal means of safety communication shall include -
- [i] safety policies and procedures;
 - [ii] news letters; and
 - [iii] bulletins.

QUALITY POLICY

77. The Aerodrome Operator shall ensure that the organization quality policy is consistent with, and supports the fulfilment of the activities of the SMS.

IMPLEMENTATION OF THE SMS

78. This Directive proposes, but does not mandate, a phased implementation of an Aerodrome Operator SMS, which encompasses the four phases as described in the following paragraphs.

79. Phase 1 should provide a blueprint on how the SMS requirements will be met and integrated to the organization's work activities, and an accountability framework for the implementation of the SMS -

- [i] Identify the accountable executive and the safety accountabilities of managers;
- [ii] Identify the person [or planning group] within the organization responsible for implementing the SMS;
- [iii] Describe the system [Certified aerodrome operator];
- [iv] Conduct a gap analysis of the organization's existing resources compared with this Directive requirements for establishing an SMS;
- [v] Develop an SMS Implementation Plan that explains how the organization will implement the SMS on the basis of this Directive, the system description and the results of the gap analysis;
- [vi] Develop documentation relevant to safety policy and objectives; and
- [vii] Develop and establish means for safety communication.

80. Phase 2 should put into practice those elements of the SMS Implementation Plan that refer to the safety risk management reactive processes -

- [i] Investigation and analysis;
- [ii] Hazard identification and risk management;
- [iii] Training relevant to:
 - [a] SMS Implementation Plan components; and
 - [b] safety risk management [reactive processes].
- [iv] Documentation relevant to:
 - [a] SMS Implementation Plan components; and
 - [b] safety risk management [reactive processes].

81. Phase 3 should put into practice those elements of the SMS implementation plan that refer to the safety risk management proactive processes -

- [i] Investigation and analysis;
- [ii] Hazard identification and risk management;
- [iii] Training relevant to:
 - [a] SMS Implementation Plan components; and
 - [b] safety risk management [reactive processes].
- [iv] Documentation relevant to:
 - [a] SMS Implementation Plan components; and
 - [b] safety risk management [reactive processes].

82. Phase 4 should put into practice operational safety assurance -

- [i] Development of acceptable level (s) of safety;
- [ii] Development of safety indicators and targets;
- [iii] SMS continuous improvement;
- [iv] Training relevant to operational safety assurance; and
- [v] Documentation relevant to operational safety assurance.

83. The Appendices to this Directive shall be taken, construed, read and be part of this Directive.

DATO' AZHARUDDIN ABDUL RAHMAN
Director General
Department of Civil Aviation
Malaysia

Dated: 1 JANUARY 2008

APPENDIX I

PARTICULARS TO BE INCLUDED IN A SAFETY MANAGEMENT SYSTEM [SMS] MANUAL

The Safety Management System [SMS] Manual shall document all aspects of the SMS and its contents shall include the following:

1. Scope of the Safety Management System;
2. Safety Policy and Objectives;
3. Safety Accountabilities;
4. Key Safety Personnel;
5. Documentation Control Procedures;
6. Emergency Response Planning;
7. Hazard Identification and Risk Management Schemes;
8. Safety Performance Monitoring;
9. Management of Change;
10. Safety Auditing;
11. Safety Promotion; And
12. Contracted Activities.

APPENDIX II

EXAMPLE OF SAFETY POLICY FOR AN AERODROME OPERATOR

1. The *<aerodrome operator's>* principal safety objective is to minimize, as much as is reasonably practicable, the risk of an aircraft accident at or in the vicinity of the aerodrome. Thus, safety shall be afforded the highest priority throughout the activities of the *<aerodrome operator>* and take priority over commercial, environmental and social considerations.
2. To achieve its principal safety objective, the *<aerodrome operator>* shall apply a formalized and proactive approach to systematic safety management within the aerodrome operation. A safety management system shall be implemented in respect of all activities and supporting services which are under the managerial control of the *<aerodrome operator>*.
3. Everyone involved in the operation aspects of the *<aerodrome operator>* has an individual safety responsibility for his/her own actions. As safety is an integral function of management, all line managers are accountable for the safety performance of their areas of responsibility, and for ensuring that safety requirements are complied with.
4. The *<aerodrome operator>* shall comply with all statutory obligations and with the safety management requirements of the *<regulatory authority>*.

**EXAMPLE OF
RISK ASSESSMENT MATRIX**

Probability of occurrences		
Qualitative definition	Meaning	Value
Frequent	Likely to occur many times (Has occurred frequently)	5
Occasional	Likely to occur some times (Has occurred infrequently)	4
Remote	Unlikely, but possible to occur (Has occurred rarely)	3
Improbable	Very unlikely to occur (Not known has occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Severity of occurrences		
Aviation definition	Meaning	Value
Catastrophic	<ul style="list-style-type: none"> • Equipment destroyed • Multiple deaths 	A
Hazardous	<ul style="list-style-type: none"> • A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely. • Serious injury or death to a number of people. • Major equipment damage 	B
Major	<ul style="list-style-type: none"> • A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency. • Serious incident. • Injury to persons. 	C
Minor	<ul style="list-style-type: none"> • Nuisance. • Operating limitations. • Use of emergency procedures. • Minor incident. 	D
Negligible	<ul style="list-style-type: none"> • Little consequences 	E

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
5 – Frequent	5A	5B	5C	5D	5E
4 – Occasional	4A	4B	4C	4D	4E
3 – Remote	3A	3B	3C	3D	3E
2 – Improbable	2A	2B	2C	2D	2E
1 – Extremely improbable	1A	1B	1C	1D	1E

Assessment risk index	Suggested criteria
5A, 5B, 5C, 4A, 4B, 3A	Unacceptable under the existing circumstances
5D, 5E, 4C, 3B, 3C, 2A, 2B	Risk control/mitigation requires management decision
4D, 4E, 3D, 2C, 1A, 1B	Acceptable after review of the operation
3E, 2D, 2E, 1C, 1D, 1E	Acceptable